Claims:

1.   A method of determining parameters of plurality of thermal cycles to achieve a set glass strain level, the method comprising:
providing a plurality of input parameters for a glass substrate and a plurality of parameters for a plurality of thermal cycles; and
providing a computer which is adapted to iteratively modify at least one of the plurality of thermal cycle parameters so the glass strain is not greater than the set glass strain level after a final thermal cycle is completed.

2. A method as recited in claim 1, wherein the iterative modifying includes providing a penalty function, which provides constraints on allowed temperature variations, heating and cooling rates, hold times, and durations of the plurality of thermal cycles.

3. A method as recited in claim 1, wherein the input parameters include parameters from the manufacturing thermal history of a glass material.

4. A method as recited in claim 3, wherein the input parameters includes parameters for a subsequent thermal processing sequence.

5. A method as recited in claim 4, wherein the input parameters include a single choice of time and temperature for the manufacturing thermal history and the subsequent thermal processing.

6. A method as recited in claim 4, wherein the subsequent thermal processing includes forming at least one semiconductor layer over the glass material.

7. A method as recited in claim 1, wherein the set glass strain level is a compaction

level.

8. A method as recited in claim 7, wherein the compaction is has a magnitude not exceeding approximately 10 ppm.

9. A method as recited in claim 7, wherein the compaction is in the range of approximately 0 ppm and -10 ppm.

10. A method as recited in claim 1, wherein an absolute value of the glass strain is less than approximately 10 ppm.

11. A method as recited in claim 1, wherein the plurality of parameters is in the range of approximately 10^3 to approximately 10^6.

12. A method as recited in claim 11, wherein all of the plurality of parameters is iteratively modified.

13. A method as recited in claim 1, wherein the parameters are pairs of time and temperature.

14. A method of setting a glass strain level, the method comprising:

    providing a computer;

    a.) obtaining a set of glass constants;

    b.) obtaining glass manufacturing thermal history parameters;

    c.) obtaining a set of subsequent thermal processing parameters;

    d.) setting a set of initial fictive temperature components to an initial temperature value;

    e.) calculating a value of viscosity at a current temperature and a current fictive temperature;

    f.) calculating a change in the fictive temperature for a given change in time;

g.) updating a set of data including the current temperature, the current time and the current time, and storing these data;

h.) determining if the current time from step g.) is a set final time, and if not repeating steps e.) through h.), and if so, terminating the method.

15. A method as recited in claim 14, the method further comprising:

i) calculating a penalty function, returning to step c) and obtaining another set of thermal processing parameters; and

repeating steps d) through i) for the new thermal processing parameters.

16. A method as recited in claim 15, wherein the step i) is repeated up to 10^6 times.

17. A method as recited in claim 15, wherein step i) is repeated for approximately10^3 to approximately 10^6 thermal history parameters and thermal processing parameters.

18. A method as recited in claim 14, wherein the glass manufacturing thermal history is input to a microcomputer as ordered pairs of time and temperature.

19. A method as recited in claim 14, wherein the subsequent thermal history is input to a computer as ordered pairs of time and temperature.

20. A method as recited in claim 14, wherein the initial fictive temperature is set to the highest temperature that occurs during glass manufacture.

21. A method as recited in claim 14, wherein the glass strain is given by:

$$C = \beta(T_f^{after} - T_f^{before})$$

where, C is the glass strain, β is a constant of proportionality, and T_f^{after} and T_f^{before} are the fictive temperatures at an end and at the beginning of a thermal process, respectively.

22. A method as recited in claim 21, wherein the fictive temperatures at the end and beginning as determined by:

$$T_f = \sum_{i=1}^{N} A_i T_{fi}$$

where there are N fictive temperature components and each contributes with a weight A_i, which is an adjustable parameter.